WHITE PAPER:

Legal Issues Related to Coalbed Methane Storage in Abandoned Coal Mines in Colorado

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DISCLAIMER

1. History of Coalbed Methane Development

Issues of Importance to Coalbed Methane Storage in Colorado

Coalbed methane, also known as coal seam gas, occluded natural gas, and gob gas, has historically been considered one of the greatest dangers to coal mining. Collected methane gas was intentionally vented to prevent accidental explosions or asphyxiation. Commercial extraction of coalbed methane was economically impractical.[1] Consequently, when deeds, contracts and statutes relating to coal and mining rights were drafted, the drafters rarely considered the question of coalbed methane ownership because it was considered valueless.[2]

Modern extraction methods have now made coalbed methane production practical. The analysis of coalbed methane ownership is thus complicated by the need to determine the intent of the parties at the time the contracts and/or deeds were drafted and executed. Courts are being called upon to determine the ownership of coalbed methane in situations where mining and mineral rights have been divorced from other incidents of ownership of the lands at issue. In its simplest form, the question is whether the entity which acquires the coal and/or gas rights, also acquires the coalbed methane rights.

The issue will also give rise to questions concerning the storage rights of coalbed methane. Can coalbed methane be stored in abandoned coal mines? If so, who owns the container space — the coal owner or the surface owner? These questions necessarily involve a complex interaction between traditional property and mineral rights laws.

In order to gain a perspective of coalbed methane development and the ensuing case decisions, it is essential to look at the beginning of coalbed methane development in the United States. The first serious research regarding coalbed methane production occurred in the 1970s when the U.S. Bureau of Mines and U.S. Steel developed a test project in the Black Warrior Basin in Alabama.[3] This program was expanded by the Bureau of Mines and the Department of Energy into a 23-well project. The project demonstrated that 73% of the "in-place" methane could be produced through vertical wells.[4] The Gas Research Institute (GRI) began its coalbed methane research in the 1980s. Its activities relating to coalbed methane have included estimating and evaluating the resource, cooperative well studies, reservoir engineering analysis, fracturing and completion work, operational improvements and recompletion of wells.[5]

The increased production of coalbed methane in the Appalachian, Black Warrior, San Juan, Piceance, Powder River and Greater Green River Basins indicates that coalbed methane has emerged as a valuable energy resource. In 1982, the national annual coalbed methane production was virtually zero.[6] By 1990, production nationwide had risen to 195 billion cubic feet (bcf), approximately 475 bcf was produced in 1992, and 1993 production reached 730 bcf.[7] Coalbed methane production increased to 858 bcf in 1994.[8] The number of coalbed methane wells in the nation had grown from a handful in 1982 to more than 6,600 in 1992.[9] By 1994, coalbed methane accounted for five percent (5%) of the nation's natural gas production.[10] Nationwide coalbed methane production increased by fifty percent (50%) during the period between 1992 and 1994.[11] According to Richard A. Schraufnagel at GRI, coalbed methane production in 1995 reached 900+ bcf and 1996 coalbed methane production topped the 1,000 bcf mark.[12]

2. Summary of Coalbed Methane Development in Colorado

Coalbed methane production in Colorado primarily takes place in Archuleta, Garfield, La Plata, Las Animas, Mesa and Rio Blanco Counties. In 1993, 134,320,019 mcf of coalbed methane were produced in Colorado. Production totalled 185,695,954 mcf in 1994, 239,853,831 mcf in 1995, and reached 274,621,938 mcf in 1996. Between January and November of 1997, 294,196,918 mcf of coalbed methane were produced in Colorado.[13] As coalbed methane development continues to increase and landowners gain additional knowledge of the value of this commodity, we may anticipate that additional ownership issues, such as storage and ownership of the storage container, will arise.

3. Coalbed Methane Ownership Issues as Related to Coalbed Methane in Abandoned Mines

In evaluating the use of abandoned coal mines for storage of coalbed methane, it is important to analyze the issues surrounding the ownership of the coalbed methane itself. An understanding of these ownership issues is necessary to recognize the potential ownership issues involving storage: (1) who has the power to grant storage rights?; (2) who owns the container space once the mineral it held is depleted?; (3) who determines when the mineral is actually depleted?; and (4) who owns the abandoned mine and shafts? These issues may give rise to the same interpretive issues raised by the parties engaged in coalbed methane ownership disputes.

Additional ownership issues relating to storage of coalbed methane in abandoned coal mines involves the use of cushion gas. In any storage facility, there must be a pocket or cushion of gas in place in order to provide the pressure needed to operate the facility.[14] Cushion or base gas is the gas in the reservoir (abandoned mine) which is native to the reservoir and/or injected into the reservoir.[15] If the cushion gas is native coalbed methane, that is gas remaining in the mine, the importance of coalbed methane ownership issues is apparent. Who will be compensated for the coalbed methane remaining in the mine -- the coal owner, the gas owner, the surface owner? How does the fact that there is coalbed methane in the mine affect the ownership of the abandoned mine container space?[16] If no cushion gas exists or there is not enough cushion gas to maintain pressure in the abandoned mine, how will the injected gas affect the ownership issues? These issues will surely arise and will need to be answered in establishing an abandoned mine storage environment in Colorado.

Thus, it is imperative that we examine the issues of coalbed methane ownership. The question of the extent of mineral rights conveyed or reserved generally includes a consideration of the intent of the parties or drafters of the instruments (deeds and leases) or statutes which created the rights.[17] Therefore, courts are now being called upon to determine the intent of individuals who historically gave little, if any, consideration and likely never formed any intent as to the ownership of coalbed methane. In some instances, however, the courts must also decide whether the intent of the parties or legislators is or should be a factor in the coalbed methane ownership determinations.[18]

a. Coal Owner Argument

Many cases analyzing the coalbed methane ownership issue have included arguments regarding the definitions of “coal”[19] and “gas.”[20] The location of the coalbed methane in the coal

seam provides the coal owner with a substantial claim. The coal owner may claim that the coalbed methane is an inherent part of the coal and that ownership of the coal seam includes ownership of the "gas" contained within it.[21] The coal owner may further argue: (1) coalbed methane is adsorbed onto the coal; (2) the physical bond between the coal and the coalbed methane is so close that the two cannot be separated; and (3) the coal seam is the source of and the reservoir for the coalbed methane.[22]

b. Oil and Gas Owner Argument

The gas owner may argue that the chemical composition of coalbed methane is nearly identical to that of natural gas.[23] This fact provides the gas owner with a significant argument for ownership. Another theory the gas owner may espouse is that the right to produce coalbed methane from coal is no different than the right to remove natural gas from other subsurface formations (i.e. the sandstone formation, which may not belong to the gas estate owner).[24] The plain meaning of "gas" appears to definitively include coalbed methane. In contrast, "coal" commonly means a solid mineral, not a gas.[25] The oil and gas owner may also argue: (1) recovery methods parallel that of natural gas; (2) the migratory nature of coalbed methane is the same as that for natural gas; and (3) reversion of the container space to the gas owner once the coal is mined gives them a right to the gas (in cases where the gas owner is also the surface owner). However, in analyzing the ownership issue, only a few courts have held that "gas" includes coalbed methane.

c. Surface Owner Argument

Finally, a surface owner may claim an interest in the coalbed methane, although this position is clearly the weakest. In many jurisdictions, ownership of the container space reverts to the surface owner once the coal is removed.[26] Therefore, a surface owner could claim that since he owns the container space where the coal was situated, he could also claim ownership of the coalbed methane within that space. This would not, however, be a substantial argument. The gas or coal owner could easily counter that as the "mineral" owner, they are entitled to ownership of the mineral within the container space. One fact situation that may afford an ownership claim by the surface owner is where the coal, oil and gas have been specifically severed. The surface owner could claim that since coalbed methane was not contemplated (but considered to be a hazard) at the time of the severance, ownership of the non-severed mineral, the coalbed methane, remains with the "surface" or "other mineral" owner.[27]

For example, assume that Landowner A owns the property in fee simple (no prior mineral severances). Landowner A sells the property to Landowner B reserving the coal. Landowner B subsequently sells the property to Landowner C reserving the oil and gas. Landowner A owns the coal and Landowner B owns the oil and gas. Thus, Landowner C, the "surface owner," would apparently own the residual minerals. If the coal owner (Landowner A) and the oil and gas owner (Landowner B) do not own the coalbed methane, the "surface owner" (Landowner C) as the residual mineral owner could claim the coalbed methane ownership. The issue is further complicated by coal lessees, oil and gas lessees and mineral lessees.

4. Coalbed Methane Case Decisions

There are nine (9) decided, one (1) pending and two (2) settled coalbed methane cases in the United States of major significance to coalbed methane ownership. Many of the opinions have arisen out of Alabama. In all of the cases, slightly different fact situations resulted in different holdings. The decided cases represent the landmark decisions and issues surrounding coalbed methane ownership. They are relevant to storage issues in Colorado because the theories and analyses of the various courts will provide insights into past and current views on coalbed methane ownership. The issues discussed in these cases may afford an opportunity for understanding the interpretive issues that may be faced by storage operators in Colorado.

a. Decided Cases

i. *Ownership of and Right to Extract Coalbed Gas in Federal Coal Deposits*, (M-35935), 88 I.D. 538 (1981)

The Department of the Interior issued this 1981 opinion which concluded that coalbed methane gas was not reserved by the federal government when it reserved coal under the 1909 and 1910 Acts and that the federal government did reserve coalbed methane gas under the 1914 Act when the government reserved gas. The Solicitor's Opinion also concluded that federally owned coalbed gas should be exploited under oil and gas rather than coal legal authorities. These conclusions rested on six principles:

(1) the 1909 and 1910 Acts and their legislative histories;
(2) the 1914 Act and its legislative history;
(3) the Mineral Leasing Act;
(4) other federal legislation addressing the exploitation of associated minerals;
(5) common law and scientific principles; and
(6) coal and gas legal authorities in relation to exploration and production of coalbed gas.[28]

ii. *United States Steel Corp. v. Hoge*, 468 A.2d 1380 (Pa. 1983)

In *Hoge*, the Pennsylvania Supreme Court held that the gas which is present in the coal necessarily belongs to the coal owner. The court was asked to determine the ownership of coalbed methane, found in the "Pittsburgh" or "River" vein of coal owned by United States Steel Corporation (U.S. Steel), which underlaid certain tracts of land owned by Hoge, Cowan and Murdock (Hoge). U.S. Steel acquired ownership of the coal through a severance deed dated July 23, 1920.

The severance deed granted, in pertinent part, "all the rights and privileges necessary and useful in the mining and removing of said coal, including . . . the right of ventilation."[29] Hoge's predecessor in title reserved "the right to drill and operate through said coal for oil and gas without being held liable for any damages."[30]

In formulating its conclusion, the court considered the history of gas development; the general nature of coal ownership rights; and the language contained in the severance deed in question. The court held that, as a general rule, such gas as is present in coal must necessarily belong to the coal owner, so long as it remains within his property and

subject to his exclusive dominion and control.

In examining the language in the severance deed, the court gave "effect to all its terms and provisions, and construe[d] the language in light of conditions existing at the time of its execution."[31] At the time of the severance deed, the court found that commercial exploitation of coalbed gas was very limited and sporadic. Thus, even though the unrestricted term "gas" was used in the reservation clause, the court did not believe the parties intended to reserve all types of gas. The court found "implicit in the reservation of the right to drill through the severed coal seam for 'oil and gas' a recognition of the parties that the gas was that which was generally known to be commercially exploitable."[32] The reservation was limited by the court to the right to drill through the coal seam to reach the oil and gas lying below the coal strata.

iii. *Rayburn v. USX Corp.*, No. 85-G-2661-W, 1987 U.S. Dist. LEXIS 6920 (N.D. Ala. 1987), *aff'd without opinion*, 844 F.2d 796 (11th Cir. 1988)

In *Rayburn*, the United States District Court for the Northern District of Alabama held that title to the coalbed methane was vested in the coal owner. The court's holding in *Rayburn* was "based on the language of the deed in question and is not a declaration that in all instruments the interpretation will be the same."[33] The pertinent language in the 1960 severance deed on which the court based its decision is as follows:

> Grantors herein covenant and agree that any right to explore for or produce oil and gas, or to drill wells for the exploration for or production of oil and gas in the above-described lands *shall be subject to the requirement that all coal seams located in said lands penetrated in such exploration or drilling operations shall be encased or grouted off* . . . .[34]

The court found this language to be clear and unambiguous. The clearly expressed intent of the parties was that the methane in the coalbed not be available to any well drilled by oil and gas lessees or assigns.[35]

iv. *Rights to Coalbed Methane Under an Oil & Gas Lease for Lands in the Jicarilla Apache Reservation*, No. M-36970, 98 I.D. 59 (1990)

The Department of the Interior rendered a decision addressing the question of whether coalbed gas was granted under oil and gas leases issued for Indian lands. The Department concluded that coalbed gas was granted under these leases. First, the Department determined that coalbed gas is "natural gas," noting that this conclusion was not altered by the physical status of coalbed gas and recognizing that many types of gas take gaseous or liquid forms in reservoir rock.[36] Second, the Department concluded that the term "oil and gas deposit" as used in Indian leases includes coalbed gas.[37] Third, the Department concluded that coalbed gas was conveyed under Indian oil and gas leases irrespective of whether the parties had a specific intent to convey that

resource.[38] Fourth, the Department reached these conclusions in reliance upon the 1981 Solicitor's Opinion.[39]

v. *Carbon County v. Baird*, No. DV 90-120, 1992 WL 464786 (Mont. Dist. Ct. Dec. 14, 1992), *rev'd sub nom. Carbon County v. Union Reserve Coal Co.*, 898 P.2d 680 (Mont. 1995)

The court in *Carbon County* held that the conveyance of "coal and coal rights with the right of ingress and egress to mine and remove the same"[40] included ownership of the coalbed methane gas contained in the coal as well as the exclusive right to develop such gas.

Union Reserve Coal Company was the successor in interest to a 1974 contract of sale that agreed to sell "all coal and coal rights with the right of ingress and egress to mine and remove the same."[41] In 1991, Florentine Exploration and Production, Inc., obtained an oil and gas lease on the property in question. The lease granted Florentine "the exclusive right for the purpose of mining, exploring by geophysical or other methods, and operating for and producing therefrom oil and all gas, including coal seam methane of whatsoever nature or kind . . . ."[42] Florentine attempted to secure a protective coal seam methane gas lease from Union. Florentine, however, drilled a well before securing the protective lease and Union later rejected the offer. Carbon County initiated the suit and Florentine was allowed to intervene. Florentine sought to quiet title to the coal seam methane gas as conveyed to it pursuant to the aforementioned lease.

Coal seam methane was described by the court, in the findings of fact, as a product of the coalification process.[43] The court thus held that coal is both the source of and the reservoir of the methane. The combination of methane gas and coal was noted by the court to be the cause of frequent and tragic explosions in coal mines.[44] In addition, the court noted that it was important for the coal mine operator to be able to mine the coal in the most economical and effective method.[45] Thus, it is necessary that the coal operator have control over the drilling of wells into the coal seam in order to minimize disruptions to the mining process caused by the drilling and completion of wells in the coalbed.[46]

The decision in the case turned on the interpretation of the language granting the "coal and coal rights." The court relied upon the legal precedents rendered in *United States Steel Corp. v. Hoge*;[47] *Rayburn v. USX Corp.*;[48] and, *Pinnacle Petroleum Co. v. Jim Walter Resources, Inc.*[49] In each of these cases, the courts found in favor of the coal owner. The court noted that removal of methane gas is essential to the mining of coal. Before the coal can be safely mined, the coal operator must remove the methane.[50] These facts and legal principles, combined with the fact that coal is the source of and the reservoir of the coal seam methane gas, led the Montana court to hold that the conveyance of "coal and coal rights with the right of ingress and egress to mine and remove the same"[51] by Carbon County included "coal seam methane gas as a product of the coalification process, and included with it the ownership of the coal methane gas contained in the coal, as well as the exclusive right to develop or dispose of and [*sic*] coal seam methane."[52] Accordingly, the court held that Florentine trespassed upon the coal. Thus, Florentine's complaint requesting that the court declare it the owner of the

coal seam methane gas and its counterclaim that it had acquired the right to produce the coal seam methane gas under the lease were dismissed.[53]

The district court decision was appealed to the Montana Supreme Court.[54] The main issue before the court was whether coal seam methane gas was a constituent part of the coal estate granted to Union.[55] The Montana Supreme Court closely examined the plain meanings of the terms "coal" and "gas" and concluded that coal and gas are mutually exclusive terms.[56] The court opined that "[s]ince coal seam methane gas is a fluid hydrocarbon and is produced at the wellhead, it falls within the statutory definition of gas and again it is distinguishable from coal, a solid hydrocarbon.[57] It also noted that coal seam methane gas is potentially severable from the coal seam.[58]

The *Carbon County* Supreme Court reversed the district court and ruled that the district court had erred in awarding Union Reserve the right to produce the coalbed methane gas from the coalbeds.[59]

The court stated that "Union Reserve only acquired the coal and the incidental right to mine and remove the coal."[60] It found that Florentine had been given the right to extract the coal seam methane gas, and that Union Reserve could extract and capture the gas only for purposes of safety incidental to its coal mining operations.[61] Accordingly, it concluded that coalbed methane gas "is separate from coal and is not a constituent part of the coal estate."[62]

vi. *Vines v. McKenzie Methane Corp.*, 619 So. 2d 1305 (Ala. 1993)

In *Vines*, the Supreme Court of Alabama held that the ownership of methane gas, with the accompanying rights to develop and produce it, was included in the coal and mineral conveyances. The conveyancing language contained in two (2) pre-1910 mineral deeds (Deeds) was at issue. The deeds conveyed the following estates: (1) "all of the coal, iron ore, and other minerals";[63] and (2) "all the coal and other minerals."[64] McKenzie Methane Corporation (McKenzie) obtained coalbed methane leases (Leases) from the successors in interest to the grantees in the Deeds. McKenzie planned to drill coalbed methane wells independent of mining operations. The Grantors sought to prevent drilling operations on the property arguing that coalbed methane was not considered valuable at the time of the Deeds. Thus, coalbed methane was not conveyed by the Deeds and the Leases were, therefore, ineffective. At the trial court level, summary judgment was granted in favor of McKenzie.

The Alabama Supreme Court noted that coalbed methane is produced from coal seams and is formed during and as a by-product of the coalification process. It further noted that although some of the methane migrates out of the coal, a large amount remains behind and is physically bound to the coal. Because coalbed methane is liberated during mining and poses a significant hazard to the miners, it must be removed. The court found that the existence of coalbed methane in commercial quantities was recognized in Alabama as early as the 1920's. It was not, however, a significant industry until the 1980's.[65]

The court relied upon the legal precedents rendered in *United States Steel Corp. v. Hoge*;[66] *Rayburn v. USX Corp.*;[67] and *Carbon County v. Baird*.[68] In each of these cases, the courts held that the coal estate owner was also the owner of the coalbed methane gas.

The Alabama Supreme Court held that the evidence in the case at bar confirmed that the processes for coalbed methane gas drilling and coal mining are inextricably entwined.[69] The drilling process was noted by the court as an intrusion upon coal mining. The court, in keeping with earlier Alabama law construing mineral leases, held that "an express grant of 'all coal' necessarily implies the grant of coalbed methane gas, unless the language of the grant itself prevents this construction."[70] The court found that neither of the Deeds in question contained any limiting language, and in fact, clearly reserved only the surface rights. Accordingly, the court held that the ownership of methane gas, with the accompanying rights to drill for it, was necessarily included in the mineral estates granted in the Deeds and affirmed the summary judgments for McKenzie.[71]

vii. *Cantley v. Hubbard*, 623 So. 2d 1079 (Ala. 1993)

The Alabama Supreme Court in Cantley interpreted a 1929 warranty deed in an action involving conflicting claims to production royalties from three methane gas wells in a coal degasification field. In a 1924 patent, the United States reserved all the coal underlying the land in question. In a 1929 warranty deed, the grantor (a successor in interest to the United States) reserved "[a]ll mineral reserved to the United States."[72] On a motion for summary judgment, the court held that this language reserved all the minerals that were owned by the grantor at that time, i.e., all the minerals less the coal that had been reserved by the United States. The portion of the reservation "to the United States" was interpreted by the court as "merely an erroneous recitation of the prior reservation."[73] The court held that all mineral rights, other than coal, were clearly reserved by the grantor of the 1929 warranty deed. Thus, by implication, the coalbed methane was reserved by the 1929 warranty deed's grantor.

The *Cantley* court referred to *Vines v. McKenzie Methane Corp.*,[74] in a footnote and stated that it made no judgment as to the possible interests held by other parties because the question of whether a lease of coal rights included the right to explore for and produce coalbed methane was not raised.[75]

viii. *NCNB Texas Nat'l Bank v. West*, 631 So. 2d 212 (Ala. 1993)

In *West*,[76] the appeal arose from a Mobile County Circuit Court decision in which the trial court held that the language granting the coal contained in the chain of title deeds (Deeds) vested ownership of the coalbed methane in the coal owners/lessees (Jim Walters Parties) and not in the gas owners (Trustee Bank). The Alabama Supreme Court affirmed in part, reversed in part and remanded the case for further proceedings.

The Alabama Supreme Court's decision in these cases, as in the lower court, hinged on the interpretation of the reservations and the conveyancing language contained in the Deeds. The Deeds granted the following estate: "all the coal, and mining rights . . .",[77]

and reserved the following estate: "all interest . . . other than the above-described interests in coal and mining rights . . . . Grantor specifically reserves all of the oil, gas, petroleum and sulphur . . . ."[78] The Jim Walter Parties maintained that the coalbed gas was granted to them by virtue of the Deeds. Conversely, the Trustee Bank argued that the Deeds reserved the coalbed gas.

The trial court relied heavily upon the legal precedent rendered in *Hoge* and held that the coalbed gas belongs to the coal owner. However, the Alabama Supreme Court reached a different conclusion in part. In determining the intent of the parties to the Deeds, the Supreme Court relied upon general deed construction cases. The Supreme Court agreed with the trial court's analysis that the Deeds were not ambiguous. However, the Supreme Court did not agree that, as a matter of law, a reservation of "all gas" did not include coalbed methane. The court, focusing on the "plain meaning" of the words used in the Deeds and basic principles of property law, held:

> the fact that the coalbed methane gas is produced by, and stored within, coal seams does not require the conclusion that a grant of 'all coal' includes coalbed methane gas, nor does it require the conclusion that a reservation of 'all gas' does not include coalbed methane gas . . . . However, careful analysis of the law of real property indicates that the ownership of coalbed gas depends upon its location at the time the gas is recovered or 'captured,' at which time it is reduced to possession.[79]

The court reasoned that under the rule of capture, gas that migrates from one property to another is subject to recovery and possession by the holder of the gas estate on the property to which the gas migrates.[80] The Supreme Court evaluated the conveyance of coal "as a distinct property [which] also includes that bundle of property rights included within the coal, such as the rights incident and necessary to the recovery of the coal."[81] Thus, the Supreme Court held that the rule evolved to settle disputes between oil and gas owners on separate tracts of land. The court held that this rule was also applicable to coalbed methane gas, a migratory mineral resource.

> Thus, so long as the coalbed gas is bound within the coal seam in which it originated, the holder of the coal estate has the right to extract the gas and reduce it to possession. However, once the coalbed gas migrates out of the stratum in which it originated, the right to recover the gas belongs to the holder of the gas estate (footnote omitted).[82]

As to the venting of coalbed gas for mining purposes, the Supreme Court held, and the Trustee Bank agreed, that "[to] the extent that ventilation is required by law, the coal owner will not be liable to the owner of the gas rights for any waste of methane gas that occurs during ventilation."[83] The court held that the Trustee Bank had no interest in coalbed gas recovered from horizontal or vertical wells drilled directly into coalbeds before the coal is mined. The Trustee Bank does, however, have an interest in coalbed methane gas that migrates out of the coal seams, such as gas collected within the gob zone.

Thus, the court held that:

> absent a clear showing to the contrary, the reservation of all gas includes the right to coalbed methane gas that migrates into other strata from out of the source coal beds where it formed. . . . based on the facts and circumstances of each case, and absent a clear showing . . . to the contrary, the reservation of coalbed methane gas does not include coalbed gas contained within its source coal seam, and that the holder of the coal estate has the right to recover *in situ* such gas as may be found within the coal seam. However, once that gas escapes unrecovered from the coal and migrates into other strata, then the holder of the gas estate has the right to reduce to possession the coalbed methane gas from the other strata. If the coal owner captures and sells gob gasses that have migrated into other strata, the gas owners are entitled to share in any profits on such sales, after taking into account the cost borne by the coal owner in capturing and marketing the gas.[84]

The Alabama Supreme Court affirmed the portion of the trial court's holding that the Jim Walter Parties "have the exclusive right to produce and own coalbed methane gas from horizontal boreholes and vertical degasification wells drilled directly into the source coal seam."[85] The Supreme Court, however, reversed the trial court's holding regarding the right to recover coalbed methane from the gob area above the source coalbed and, instead, held that the Trustee Bank "has the exclusive right to produce and own all the coalbed methane gas that has been, or that will be, produced from gob wells . . . ."[86] The case was remanded to the trial court for further proceedings regarding the determination of factual and legal issues.

ix. *Southern Ute Indian Tribe v. Amoco Production Co.,* 874 F. Supp. 1142 (D. Colo. 1995) *rev'd* 119 F.3d 816 (10th Cir. 1997)

In 1991, the Southern Ute Indian Tribe (Tribe) sued Amoco Production Company,[87] other oil companies, individual oil and gas lessees and federal defendants in their capacities as trustees for the Tribe, claiming ownership of the coalbed methane underlying approximately 200,000 acres within the Southern Ute Indian Reservation in southwest Colorado. On September 13, 1994, the United States District Court of Colorado held that under the 1909 and 1910 Acts (the "Acts"), which were the source of title to the coal, the reservation of "coal" did not include coalbed methane. The Tribe appealed that decision.[88]

On July 16, 1997, the United States Court of Appeals for the Tenth Circuit reversed the lower court's decision and held that the Tribe, as the successor in interest to the United States' statutory reservation of coal, is the owner of the coalbed methane underlying the subject lands. In reaching its decision, the court analyzed the Acts that were the source of the Tribe's interest. The Acts provided that patents issued for lands belonging to the United States "shall contain a reservation to the United States of all coal in said lands, and the right to prospect for, mine, and remove the same."[89]

In analyzing the Acts, the Court of Appeals utilized various principles of statutory interpretation. It found that the legislative history of the Acts "suggested" that Congress intended to adopt "an interpretation of coal which encompassed both the present and future economic value of coal, including value that could only be realized through advances in technology such as those which drive the present day exploration for CBM."[90] The Court was persuaded by the historical context and legislative history of the Acts that the coalbed methane was reserved to the United States. The Court noted that its decision was also supported by previous interpretations of analogous statutory mineral reservations.

Finally, the Court considered the 1981 Solicitor of the Department of the Interior opinion, *Ownership of and Right to Extract Coalbed Gas in Federal Coal Deposits*.[91] The Court found that the Solicitor's opinion was not binding policy because it was not promulgated through the rule-making process nor adjudicated. It was only a "public pronouncement that Interior will not assert the federal government's right to CBM under its reservation of coal" but rather under its oil and gas reservations.[92] The Court also stated that the case on which the Solicitor relied in support of his conclusion was overruled on appeal and that the opinion was inconsistent with Interior statements made contemporaneously with the Acts. The Court was convinced that the Solicitor's interpretation of the Acts was arbitrary because he did not explain how "Congress could have intended to convey a substance neither known to be valuable nor severable at the time of the enactments," and so omitted potentially determinative factors from his analysis.[93] The *Southern Ute* case was remanded to the trial court to address various issues raised by the defendants.[94]

Subsequently, the Tenth Circuit Court of Appeals granted a rehearing en banc (before the full court). A hearing was held on March 17, 1998, but no decision has been rendered to date.

In spite of the fact that the *Southern Ute* case involved a dispute over the ownership of coalbed methane located in Colorado, neither the district court nor the Tenth Circuit discussed Colorado law in their decisions. As discussed above, both courts' inquiries involved determining Congress's intent when it reserved coal in the federal acts. In its decision, the Tenth Circuit specifically noted that state court decisions regarding coalbed methane ownership, such as *West*[95], *Vines*[96], *Hoge*[97] and *Carbon County*[98], "ultimately have little to offer in terms of our interpretation of congressional intent in the 1909 and 1910 Acts."[99] However, like the other coalbed methane cases discussed in this section, the *Southern Ute* decision does illustrate how a Colorado court might approach the problem of coalbed methane ownership on federal lands.

b. Pending Case

James C. Street v. OXY USA, Inc., Case No. 162-90 (Va. Cir. Ct., filed June 29, 1990)

The plaintiffs in *James C. Street v. OXY USA Inc.* filed a bill of complaint, in the Circuit Court of Buchanan County, Virginia, requesting a declaratory judgment to determine the rights of the parties to the natural gas and coalbed methane gas in a 458-acre tract. Street alleges that an 1887 deed, to OXY's predecessors in title, did not convey the coalbed methane or the natural

gas underlying the 458-acre tract. Thus, Street, as surface owner, contends that title to the natural gas and coalbed methane is vested in him. The coal lessee, Garden Creek Pocahontas Company (Garden Creek), and the coal sublessee, Island Creek Coal Company (Island Creek), were allowed to intervene in the case. Garden Creek alleged that as coal lessee it had the right to: (1) release coalbed methane into the atmosphere as a safety measure in its mining operation; and (2) capture the coalbed methane by virtue of its coal lease on the property.

Subsequently, Garden Creek and Island Creek filed a motion for summary judgment. They have argued that the 1887 deed which conveyed "all the coal and mineral in, upon, and underlying" the 458-acre tract did in fact convey the natural gas to OXY's predecessors in title. In support of their argument, Garden Creek and Island Creek cited the decision in *Warren v. Clinchfield Coal Corp.*[100] The court in *Warren* held that the generic term "minerals," unless otherwise qualified, embraced not only solid minerals but oil and gas as well.[101] As of the time this document was completed, no decision had been reached on the intervenors' motion for summary judgment.

c. Settled Cases

i. *Pinnacle Petroleum Co. v. Jim Walter Resources, Inc.*, No. CV-87-3012 (Ala. Cir. Ct. July 28, 1989) (order partially granting defendant's motion for summary judgment)

In *Pinnacle*, Pinnacle Petroleum Company (Pinnacle) derived its interest in the oil and gas underlying the property in dispute through a printed form oil and gas lease dated August 31, 1978, from E.L. Hendrix and wife, to Alabama Basic Land Enterprises, Inc. Typewritten onto the first page of the Hendrix lease was the statement: "this lease does not include coal."[102]

Jim Walter Resources, Inc. (Jim Walter) derived its interest in the coal through a lease dated December 6, 1984, from The First National Bank of Tuscaloosa, Trustee, to the United States Pipe and Foundry Company. The coal lease referenced the Hendrix oil and gas lease and indicated that the coal lessee could remove and dispose of the coal seam gas subject to any right of the oil and gas lessee or its assignees.[103] The coal lease also made specific provisions for the removal of coal seam gas and royalty payments should the coal seam gas be sold.[104]

Pinnacle's arguments for partial summary judgment were (1) that its gas lease covered coalbed methane because methane is technically a "gas";[105] and (2) that after extraction of the coal is completed, the mined area reverts to the grantor.[106] Since a gob well produces methane only after mining occurs, this is a post mining method of extraction, and the methane should revert to the coal lessor.[107] Jim Walter relied primarily on the *Hoge* and *Rayburn* decisions in arguing that the coalbed methane was owned by the coal estate as a result of: (1) the characteristics of coalbed methane; (2) the history of coalbed methane production; (3) the acknowledged right to remove the coal included the incidental right to remove the coalbed methane; and, (4) the conveyancing instruments revealed the intent of the parties as to the coalbed methane ownership and development.[108]

In its July 28, 1989 order, the court held that Jim Walter, as the coal lessee, had the exclusive right to produce coalbed gas from the property that was the subject of the lawsuit.[109] The action remained on the docket to settle factual disputes about whether any of the gas produced by Jim Walters was gas other than coalbed methane.[110] However, since that time, the case was dismissed with prejudice pursuant to a stipulation by the parties.

ii. *Finite Resources, Ltd. v. Western Fuels-Illinois, Inc.*, No. 93-L-47 (Ill. Cir. Ct., filed July 20, 1993)

In *Finite*, Finite Resources, Ltd. (Finite), filed suit claiming that Brushy Creek Coal Company, Inc. (Brushy Creek), owed it royalties on the coalbed methane gas Brushy Creek was venting for its coal mining operation. Western Fuels-Illinois, Inc. (Western), the coal owner, leased its interest in coalbed methane to Finite. Thereafter, Brushy Creek and Western obtained a permit from the Illinois Department of Mines and Minerals, Division of Oil and Gas for the venting of methane gas.[111] Finite claims that Western and Brushy Creek were in violation of the coalbed methane gas lease terms and claimed damages: (1) in excess of $250,000 for Western's failure to plug the Henk No. 1 well; (2) in excess of $250,000 for Western's alleged coalbed methane waste; and (3) in excess of $250,000 for Brushy Creek's alleged coalbed methane gas waste.[112]

Brushy Creek and Western filed a countersuit claiming that Finite breached the development covenants of the coalbed methane lease and asked the court to declare the lease terminated.[113] Brushy Creek and Western sought damages in the amount of $200,000.[114] Brushy Creek and Western claimed that since Finite did not develop the land as required in the coalbed methane lease, methane levels in the mine increased, and the mine was evacuated.[115] The damages included the claimed costs of drilling the methane ventilation wells and loss of income from coal mining operations.[116] Other issues raised by Brushy Creek and Western involved Finite's royalty payments, rights to wells drilled prior to the lease and rental of these well sites.[117] This case was settled before trial. Therefore, the issues were never litigated and decided.

5. Ownership Claims to Storage Container Space

If the property that will be utilized for storage is a fee property (surface and no mineral severances -- all property rights are together in one bundle), there are no specific or problematic issues involved in acquiring storage rights.[118] However, complications may arise as the result of concurrent and future interests.[119] For example, the bundle of property rights may be separated into: (1) surface ownership; (2) coal ownership; (3) gas ownership; (4) oil ownership; and/or (5) residual mineral ownership (minerals other than coal, oil, and gas). Each of these ownership interests may have been leased to companies for development. The lessees of the mineral estates can then create additional burdens upon the leasehold -- overriding royalties, production payments, working interests, joint venture agreements, and farmouts, etc. Furthermore, the ownership interests themselves may be varied: (1) life estates; (2) remainders; (3) possibilities of reverter or reversion; etc.

Although Colorado has enacted legislation authorizing the condemnation of property, (both surface and underground storage space) for underground natural gas storage, the statutes merely provide a

mechanism for acquiring property. In enacting the Underground Storage Act (Storage Act), the Colorado legislature stated that the "underground storage of natural gas is found and declared to be in the public interest because it will promote the conservation of natural gas, make natural gas more readily available to the domestic, commercial, and industrial consumers of this state, and permit the building of natural gas reserves and orderly withdrawal thereof in periods of peak demand."[120] The Storage Act recognizes that property acquired for natural gas storage has been devoted to a public use, and therefore, is subject to acquisition by a natural gas public utility through the state's power of eminent domain.[121] Under the Storage Act, "natural gas public utility" includes any entity "engaged in the business of transporting, distributing or storing natural gas within this state for ultimate public consumption and either authorized to do business in this state as a public utility or authorized to do business in this state as a natural gas company as defined in the federal 'Natural Gas Act,' and subject to regulations by the Federal Power Commission."[122] The Storage Act defines natural gas as "gas which has been produced from the earth in its original state or such gas after the same has been processed or treated".[123]

Before any property may be acquired through condemnation for underground storage, the Oil and Gas Conservation Commission of Colorado (OGCC) must approve the storage project.[124] The OGCC may issue an order approving the project if, after notice and a hearing,[125] it finds that the project is in the public interest and welfare, "that the storage reservoir is suitable and practicable, and that the formation or formations sought to be condemned are nonproductive of oil or gas in commercial quantities under either primary or secondary recovery methods."[126] After obtaining an order from the OGCC, the party seeking to acquire property for the storage facility must file a petition in the district court of the county containing some portion of the land to be acquired.[127] The petition and proceedings in the district court must follow the general procedures governing eminent domain.[128]

The Colorado eminent domain statutes require the condemnation petition to list "all persons interested as owners or otherwise" in the property.[129] It may also be necessary to make an effort to purchase the property before a condemantion petition can be filed.[130] However, neither the Underground Storage Act nor the eminent domain statutes specify from whom storage rights must be acquired or to whom any offer to purchase must be made. Therefore, even if the right of eminent domain is utilized to acquire the property, it is necessary to first determine the parties that may own the container space. When divisions of ownership have taken place, disputes over the ownership of the storage space may arise. It appears that this issue has not been resolved in Colorado.

a. Mineral Owner

A few jurisdictions have held that the mineral owner is the owner of the container space.[131] However, some jurisdictions have significantly limited the application of such a rule of law.[132] In one recent case, use of a mine as a storage container was contingent upon the fact that the mine was not exhausted or abandoned.[133]

b. Surface Owner

The majority of jurisdictions hold that the surface owner, not the mineral owner, owns the container space once the mineral occupying the space has been depleted and mining (or production) of the mineral is abandoned.[134] One justification for this approach is that rights to underground storage are in no way related to the use or enjoyment of the mineral interest.[135]

Based on the foregoing, it seems likely that a Colorado court, faced with the task of determining whether the mineral or surface owner owns the container space, would find that the surface owner is the party from whom the rights to the storage space must be acquired.[136]

6. Coalbed Methane Regulatory Environment

Under the Oil and Gas Conservation Act (ACT), gas is defined as "all natural gases and all hydrocarbons not defined in this section as oil."[137] The Oil and Gas Conservation Commission (OGCC) is authorized to regulate:

i. the drilling and plugging of wells and all gas production operations;[138]
ii. the chemical treatment and shooting of wells;[139]
iii. well spacing;[140] and
iv. salt water disposal.[141]

A permit must be obtained from the OGCC before any gas well drilling operations may commence.[142] The OGCC Rules state that "well, when used alone. . . shall refer to an oil or gas well, or to a hole drilled for the purpose of producing oil or gas, or a well into which fluids are injected. . . ."[143] The term gas well means "a well, the principal production of which at the mouth of the well is gas, ..."[144] An application for a permit to drill a well must be made using a preprinted form provided by the OGCC (OGCC "Form Two").[145] Along with this form, the applicant must include a $200 filing fee and a scale drawing of the section including the proposed well location.[146] Additionally, a bond of at least $5,000 must be furnished, and the operator must negotiate with all surface owners for the payment of damages caused by drilling operations.[147] Before drilling operations may commence the operator must give notice to the surface owners and the local government.[148] Such notice must include:

i. the date operations are to begin;
ii. the operator's name;
iii. the name, address and phone number of a representative of the operator who can be contacted regarding the operations;
iv. a legal description or plat indicating the quarter section where the operations will take place; and
v. a statement that the surface owner must notify any tenants affected by the operations and a postage prepaid return addressed postcard for the surface owner to express his/her preferences regarding the consultation required under Rule 306.[149]

Rule 306 requires the operator to "use its best efforts to consult in good faith with the affected surface owner, or the surface owner's appointed tenant" regarding the location of "roads, production facilities and well sites, and in preparation for reclamation and final abandonment. . . ."[150]

The OGCC "general drilling rules" apply to the drilling of all wells.[151] These rules require that:

i. the operator use appropriate blowout prevention equipment;
ii. the well be drilled in such a way that the horizontal distance between the top and bottom of the hole, be kept to a minimum;
iii. an approved copy of the "Application For Permit To Drill, Deepen, Reenter, or Recomplete and Operate" (Form 2) be posted on the drilling rig;

iv. detailed casing requirements be followed.[152]

Additionally, steps must be taken to protect coal seams and coal workings.[153] Specifically, a gas operator must:

i. locate boreholes at least 200 feet from any coal mine shaft or entrance that is not sealed;[154]
ii. locate boreholes at least 100 feet from mine houses and fans;[155]
iii. locate boreholes at least 15 feet from any mine airway or haulage;[156]
iv. case boreholes in such a manner that prevents water (from either the surface or underground formations) from entering coal seams;[157] and
v. case boreholes in such a manner that prevents gas from contacting the coal seam or entering mine workings.[158]

7. Jurisdictional Issues Regarding Storage in Colorado

An overview of the state regulatory schemes affecting gas storage in Colorado indicates that several entities have regulatory authority over some aspect of underground storage. However, it appears that none of these entities has elected to exercise the full extent of regulatory authority that it could exert over storage operations.

a. The Public Utilities Commission

Although a review of the relevant statutes and agency rules suggests the Public Utilities Commission of Colorado (PUC) could have broad authority over underground storage, other than the inspection of pipelines at two facilities, the PUC has not elected to assume an active role in the regulation of storage fields.

The PUC has the authority "to generally supervise and regulate every public utility in" Colorado.[159] "Public Utility" is defined to include "pipeline corporation[s]" and "gas corporation[s]."[160] The PUC's Rules Governing Gas Pipeline Safety[161] (PUC Rules) define "pipeline" or "pipeline system" as "all parts of those physical facilities through which gas moves in transportation, including, but not limited to, pipes, valves, and other appurtenenances attached to pipes, compressor units, metering stations, regulator stations, delivery stations, holders and fabricated assemblies."[162] "Transmission pipeline[s]" include pipelines used for transporting "gas within a storage field."[163] "'Transportation of gas' means the gathering, transmission, or distribution of gas by pipeline, or the storage of gas in or affecting intrastate commerce."[164]

These definitions appear to bring underground storage facilities within the purview of the PUC. However, the PUC has not adopted any rules specifically addressing storage facilities. Nevertheless, the general requirements imposed on gas utilities by statutes and the PUC Rules could apply to an underground storage facility. For example, a facility could be required to:

i. file an annual return with the Department of Revenue;[165]

ii. file an annual report[166] with Information Resources Manager of the Safety and Enforcement Section of the PUC,[167] and with the U.S. Department of Transportation;[168]
iv. comply with "incident" reporting requirements;[169]
v. comply with reporting requirements for safety related conditions (conditions include corrosion, movement or loading from environmental causes such as floods or earthquakes, physicial damage or material defects, leaks, pressure exceeding maximum operating pressure, etc.);[170]
vi. file notices of major construction and repair projects.[171]

Additionally, the operator could be subject to civil penalties for non-compliance with these requirements.[172]

In spite of the fact that storage facilities appear to fall clearly within the definitions found in the statutes and rules, the PUC only actively inspects two of the, at least, nine underground storage fields located in Colorado. The PUC generally considers its jurisdiction to extend to the first downhole safety valve in any storage well. This covers all pipeline and pipeline systems through which gas travels or is processed, from the time it enters the storage facility, until the gas is partially down the injection well. The "first downhole safety valve" limit is not based on any particular rule or statute. Instead, it is an informal guideline by which the PUC operates. If, in a particular situation, the PUC believes it is appropriate to inspect further along the system, it may elect to do so. The PUC does not regulate the storage container itself, surface operations (other than pipelines and pipeline systems), or any other aspect of the storage facility[173].

Although the PUC's jurisdiction is not limited to the regulation of "utilities" in the traditional sense (i.e. companies selling to end users), the PUC's ratemaking authority provides the basis for its inspection of those underground storage facilities that it does monitor. It actively inspects those facilities where the storage field is integrated into the supply system, and the cost of the facility is rolled into the utility company's rates. Only if violations were reported or complaints were filed, would the PUC inspect other facilities.[174]

When the PUC does inspect a facility it relies on the federal Department of Transportation Office of Pipeline Safety's Pipeline Safety Regulations.[175] These regulations specify requirements for pipe materials, pipe design, design of pipeline components (including design of compressor stations, and pressure control and relief measures), welding and joining, general construction, corrosion control, testing, operations and maintenance.[176]

Although the PUC currently shows little interest in regulating underground storage facilities, it could, if it chose to, exercise a great deal of control over storage. In addition to the broad authority which the PUC Rules and relevant statutes appear to give the PUC, the Supreme Court of Colorado has held that the PUC has broad powers to regulate "public utilities in the interest of public safety" and to remedy unsafe activities by utilities.[177] Therefore, the PUC could regulate any operation by a utility that it believes poses a risk to public safety.

b. Oil and Gas Conservation Commission

As with the PUC, the relevant statutes and rules suggest that the Colorado Oil and Gas Conservation Commission (OGCC) could exercise broad regulatory authority over underground

storage. However, like the PUC, the OGCC currently exercises little control over storage facilities.

Pursuant to the Oil and Gas Conservation Act (ACT), the OGCC is authorized to regulate "[o]il and [g]as operations so as to prevent and mitigate significant adverse environmental impacts on air, water, soil, or biological resource resulting from oil and gas operations to the extent necessary to protect public health, safety, and welfare, taking into consideration cost-effectiveness and technical feasibility."[178] The statutory definition of oil and gas operations includes "the siting, drilling, deepening, re-completion, reworking. . .[of] gas storage well[s]."[179] Furthermore, the ACT specifically provides that any party who stores gas must maintain records of quantity stored for a period of five years, and file reports regarding quantities stored as required by the OGCC.[180]

The OGCC Rules further illustrate that the OGCC could exercise a great deal of control over gas storage. The OGCC Rules state that "Gas storage well means any well drilled for the injection, withdrawal, production, observation, and/or monitoring of natural gas stored in underground formations."[181] The OGCC Rules specifically require written authorization from the OGCC before engaging in gas storage operations.[182] An application for such authorization must include:

i. a plat of the area involved showing all wells and the names of record owners within a quarter mile of all injection wells and an indication of whether these owners are surface, mineral or working interest owners;
ii. a description of the operation; and
iii. copies of any operating agreements and unit or co-operative agreements.[183]

Before the application is actually filed, a copy of the application must be hand delivered or mailed to each owner of record within one quarter mile of any well. An affidavit indicating which parties have been served with the application must be attached to the application.[184] The OGCC must hold a hearing on the application before any permit is approved.[185]

Additionally, no approval will issue unless the applicant shows that the storage activity "will not result in the presence in any underground source of drinking water of any physical, chemical, biological or radiological substance or matter which may cause a violation of any primary drinking water regulation in effect as of July 12, 1982 and found at 40 C.F.R. part 142, as amended, or may otherwise adversely affect the health of persons".[186]

The OGCC "General Drilling Rules," discussed in Section VI apply to the drilling of all wells.[187] The OGCC Rules require an operator of a gas storage facility to report annually on the amount of gas injected into, withdrawn from, and remaining in the reservoir.[188]

In spite of the apparently broad authority vested in the OGCC by the relevant statutes and rules, the OGCC exercises little supervision over storage facilities. No facility has filed an annual storage report in the last three years. It seems that the OGCC would approve the wellbore configuration and oversee the drilling of the wells themselves. However, unless the facility was causing obvious harm to ground water, the OGCC appears to have little interest in storage facilities.[189] The only ongoing monitoring engaged in by the OGCC of any injection process is the regulation of Class II injection wells.[190]

c. Water Quality Control Division (WQCD)

The Water Quality Control Division (WQCD) of the Department of Public Health and Environment administers the Colorado Water Quality Control Act (Water Quality Act)[191] and the Rules promulgated by the Water Quality Control Commission pursuant to the Water Quality Act. The WQCD could become involved in regulation of underground gas storage in one of two ways. First, if it is necessary to de-water the mine for storage, a discharge permit must be obtained from the WQCD.[192] 5 CCR 1002-61 sets forth the permitting process and effluent limitations that would apply to such discharge.

Second, although the WQCC Regulations do not set a specific standard for the presence of methane in state ground water, methane could fit within the definition of "pollutant", which includes any substance determined to be "a danger to the public health, safety, or welfare."[193] Accordingly, if the underground storage of methane resulted in the presence of the gas in the state's ground water and such presence was determined to be a danger to the public health, safety or welfare, the WQCC could set standards regulating the introduction of methane gas into ground water.[194]

d. Counties and Local Governments

Counties and local governments could impose additional requirements on a storage operator.

In *Board of County Comm'rs, La Plata County, Colo. v. Bowen/Edwards Assoc., Inc.,*[195] the Colorado Supreme Court recognized that the Local Government Land Use Control Enabling Act of 1974[196] gives local governments broad authority to plan and regulate land use within their jurisdictions. La Plata County enacted the Oil and Gas Regulations of La Plata County, Colorado 1988 (La Plata Regulations) which had the stated purpose of protecting and promoting the "health, safety, morals, convenience, order, prosperity or general welfare of the present and future residents of La Plata County."[197] Additionally, the La Plata Regulations were intended to "facilitate the development of oil and gas resources . . . while mitigating potential land use conflicts between such development and existing, as well as planned, land uses."[198] The La Plata Regulations contained three categories of regulations.

The first category of regulations was intended to reduce conflicts between varying land uses.[199] These standards specified well set-backs from residential buildings, measures for controlling noise and nuisance, and spacing requirements in subdivisions.[200] The second group of regulations, environmental quality standards, required operators to minimize a facility's visual impact, take steps to reduce impact on wildlife, and identify the source of any fresh water to be used at the facility and measures employed to handle waste water.[201] The third category of requirements, dealing with surface disturbances, required the operator to use only that part of the surface reasonably necessary and to avoid any unreasonable loss of farmland.[202] In addition, access roads had to be improved to accommodate traffic flow to the facility, construction related debris had to be removed, and the operator was not allowed to burn trash without noticing the fire district and surface owners.[203] Finally, the operator was required to re-vegetate and reclaim disturbed land.[204]

After determining that the La Plata Regulations were within the scope of the county's legislative

power, the court found that the regulations were not preempted by the Colorado Oil and Gas Conservation Act. The state's interest in the development of oil and gas primarily focuses on efficient production and use of the resources, while the county is interested in furthering the orderly development of land "consistent with local demographic and environmental concerns."[205] Accordingly, the court upheld the La Plata Regulations.

However, a locality's ability to regulate oil and gas operations is not unlimited. If local regulations impose requirements which are contrary to state laws or regulations, the state standards will prevail.[206] "For example, the operational effect of the county regulations might be to impose technical conditions on the drilling or pumping of wells under circumstances where no such conditions are imposed under the state statutory or regulatory scheme, or to impose safety regulations or land restoration requirements contrary to those required by state law or regulation."[207] The *Bowen/Edwards Assoc.* decision indicates such regulations would not be upheld.

Furthermore, in *Voss v. Lundvall Brothers, Inc.*,[208] the Colorado Supreme Court held that the Colorado Oil and Gas Conservation Act preempted the City of Greely's land-use regulations which entirely banned drilling, oil, gas or hydrocarbon wells within the city. While recognizing the city's right to regulate aspects of oil and gas operations in ways that "do not frustrate and can be harmonized with the development and productions of oil and gas in a manner consistent with the stated goals of the Oil and Gas Conservation Act,"[209] the court found that the complete ban on all wells could not stand in light of the state's interest in the development of oil and gas, as demonstrated in the Oil and Gas Conservation Act.[210]

The oil and gas regulations currently in effect in La Plata County are substantially the same as those discussed in the *Bowen/Edwards Assoc*. opinion.[211] Of those Colorado counties which have underground storage facilities located within their borders (discussed in Section VIII, *History of Gas Storage in Colorado*), only Jefferson County and Mesa County have enacted oil and gas regulations. The Jefferson County and Mesa County regulations do not appear to address underground storage.

The Jefferson County regulations "apply to oil and gas drilling and production."[212] The "General" standards require that all "[o]ffensive or noxious odors, noise, fluids, gases, dust or glare" be confined to the drill tract and not affect any occupied structure.[213] Hazardous materials, toxic materials or refuse, may not be disposed of on the subject parcel, and any hazardous materials must be stored and removed as specified by state and federal regulations.[214] There must be a 600-foot buffer between drilling and production operations and any dwelling or any "structure used for public assembly, including schools and churches."[215] Additionally, operations must be at least 100 feet from any public roadways.[216] Owners and operators are responsible for preventing and removing spills involving oil, waste, and toxic or hazardous materials.[217] Additionally, a copy of an insurance policy, which meets the requirements set forth in the county regulations, must be provided.[218]

The "Visual" standards require the operator to "minimize the removal of trees and shrubs and the amount of surface disturbance,"[219] and avoid excavating or placing equipment or structures in "sensitive areas."[220] These areas include "ridges, hilltops, scenic or other areas of special visual quality."[221] Structures and site improvements must be located and designed to suit the surrounding area's "natural color, form and texture."[222] Additionally, equipment and structures

must be screened from view and glare from gas flaring or site lighting may not impact any residences that are not owned by parties to the gas lease.[223]

The "Air and Water Quality and Noise" standards dictate that all state and federal requirements in these areas be met.[224] The "Wildlife and Cultural Resources" standards prohibit habitat deterioration in areas with threatened or endangered species and areas defined as critical habitats by the Colorado Division of Wildlife.[225] Additionally, archaeological and historical resource areas, as defined by the Jefferson County Land Use Policy Plan, are protected.[226]

The "Hazard" standards require the placement of fuelbreaks around areas that have the potential for wildfires, and require operations be within a fire district or under contract for fire protection services.[227] Operations must not accelerate geologic processes (erosion, sedimentation, etc.) to the point that the processes create a hazard or nuisance.[228]
Furthermore, any activities within a floodplain must not increase flood hazards.[229]

The "Access" standards set requirements for ingress to and egress from production sites.[230] The "Reclamation" standards require that the soil erosion potentials and the visual character of the area be restored to pre-operation conditions.[231] Additionally, final land forms must be stable, and the disturbance of soil cover must be minimized.[232]

Finally, the "Drainage and Infiltration" standards state that the natural alignment and boundaries of streams must be maintained whenever possible, and culverts must be installed as required by the County Engineer where improvements will obstruct drainages.[233]

The Mesa County Land Development Code is not as comprehensive as the La Plata County or Jefferson County ordinances. Mesa County requires an operator to obtain a special use permit before conducting "any extractive activity on public land in Mesa County. A conditional use permit is required on private property in all zone districts."[234] A fee must be submitted with each application,[235] and the County Commissioners may require the operator to post security to guarantee "the execution of the site rehabilitation plan . . . in accordance with the specifications and construction schedule established or approved by the County Commissioners."[236]

8. History of Gas Storage in Colorado

There are currently at least nine underground gas storage facilities operating in Colorado.[237] One of these facilities, the Leyden Mine Storage Field, has been storing natural gas in an abandoned coal mine since 1959.[238] The Leyden Mine, operated by the Public Service Company of Colorado, is located in the Lower Laramie coal formation.[239] About 5.9 million tons of coal were extracted from the Leyden Mine between 1903 and 1950 leaving a 150 million cubic foot void.[240] The facility uses mine water as a seal.[241] The formation has a maximum depth of 1,100 feet and a minimum depth of 678 feet. The facility has 14 injection/withdrawal wells, 11 observation wells and uses several compressors with a total capacity of 16,958 horsepower. It uses 790 MMcf of base gas, has a maximum storage pressure of 250 psig[242], and an average operating pressure of 160 psig.[243]

In 1996, Richard Loesby filed a complaint with the OGCC alleging contamination of his water wells by gas which had leaked from Leyden's storage facility.[244] On October 15, 1996 the OGCC held a hearing to determine its jurisdiction over underground storage and the action that should be taken in this

particular situation.[245] The complaint was withdrawn on October 30, 1996 before the OGCC entered an order. Nevertheless, on November 4, 1996, the OGCC entered an order stating that, among other things, the OGCC does "have jurisdiction to investigate the complaint alleged by Richard Loesby."[246] It appears that the decision regarding jurisdiction was limited to this particular complaint and that no further action was ever taken.

In contrast with the OGCC decision to exercise jurisdiction over the alleged leak, it appears that the WQCD did not deem itself to have jurisdiction over the particular situation.[247] Although the WQCD does not have regulations specifically dealing with underground storage, "the WQCC does have broad authority under the Colorado Quality Control Act to deal with ground water quality issues."[248] Although natural gas is a pollutant, the WQCC has issued no standard governing methane gas.[249] In a case such as the alleged leak at Leyden, the WQCC would have to adopt a control regulation for the facility before it could take any action. For the WQCC to adopt a control regulation, there would need to be some compelling circumstance such as public health, welfare or safety.[250] It appears that WQCD determined that the Leyden facility was presenting no such threat at that time.[251]

In addition to the Leyden Mine storage field, the underground storage facilities in Colorado also include:[252]

a. The Flank Storage Field, operated by the Colorado Interstate Gas company, was first operational in 1979 and utilizes a depleted oil and gas reservoir. The facility has a maximum storage pressure of 485 psig-wh and can deliver a maximum of 164,104 Mcf per day.

b. The Fort Morgan Storage Field, operated by the Colorado Interstate Gas Company, was first operational in 1966 and utilizes a depleted oil and gas reservoir. The facility has a maximum storage pressure of 2,400 psig-wh and can deliver a maximum of 348,099 Mcf per day.

c. The Latigo Storage Field, operated by The Colorado Interstate Gas Company, was first operational in 1975 and utilizes a depleted oil and gas reservoir. The facility has a maximum storage pressure of 2,435 psig-wh and can deliver a maximum of 139,240 Mcf per day.

d. The Asbury Storage Field, operated by Public Service Company of Colorado, was first operational in 1965 and utilizes a depleted gas reservoir. The facility has a maximum storage pressure of 1,200 psig-wh and can deliver a maximum of 1,600 Mcf per day.

e. The Fruita Storage Field, operated by the Public Service Company of Colorado, was first operational in 1971 and utilizes a depleted gas reservoir. The facility has a maximum storage pressure of 1,050 psig-wh and can deliver a maximum of 2,000 Mcf per day.

f. The Roundup Storage Field, operated by the Public Service Company of Colorado, was first operational in 1978 and utilizes a depleted gas reservoir. The facility has a maximum storage pressure of 1,800 psig-wh and can deliver a maximum of 50,000 Mcf per day.

g. The Pitkin/Mesa Storage Field, operated by Wild Horse Energy Partners, LLC, was first operational in 1972 and utilizes a depleted gas reservoir. The facility has a maximum storage pressure of 1,514 psig-wh and can deliver a maximum of 20,000 Mcf per day.

h. The Young Storage Field, operated by Young Gas Storage Limited, was first operational in 1995 and utilizes a depleted gas reservoir. The facility has a maximum storage pressure of 2,160 psig-wh and can deliver a maximum of 2,000 Mcf per day. This is the only facility that falls under the jurisdiction of the Department of Transportation and Federal Energy Regulatory Commission because it stores gas which moves in interstate commerce. All other storage facilities in Colorado are considered intrastate.[253]

9. Conclusion

This report did not attempt to undertake an in-depth analysis of all the issues related to coalbed gas storage in abandoned coal mines in Colorado.[254] Rather, it attempts to generally survey the state statutes, regulations, and cases related to coalbed methane ownership issues, container space ownership issues, and gas storage issues in Colorado.

In considering the storage of coalbed methane in abandoned coal mines in Colorado, there are several major issues that should be addressed. With regard to ownership of the storage space, these issues include: (1) who owns the abandoned mine and the container space that remains after the mineral has been depleted?; and (2) if ownership depends upon the mineral being depleted or no longer recoverable, when is the mineral actually no longer recoverable, and who makes this determination? As noted in Section V, *Ownership Claims to Storage Container Space*, many questions related to these issues are yet to be answered. Precedents have not been established in Colorado in the area of gas storage, particularly in abandoned coal mines. If, when the issue arises, Colorado courts follow the majority of states, they will likely hold that the container space reverts to the surface owner once the mineral is no longer recoverable. The conveyancing language of relevant deeds and leases, intent of the parties, and surrounding circumstances would likely be critical in making any ownership determination. Furthermore, Colorado has not addressed many questions such as when the mineral becomes no longer recoverable, what happens if the mine is abandoned and there is still recoverable coal, or what happens if new techniques are discovered providing a means for recovering coal previously thought unrecoverable.

In addition to issues related to ownership of the storage space, an entity considering storage of coalbed methane in abandoned coal mines in Colorado must also address questions related to ownership of the coalbed methane already present in the mine that will be used as cushion gas, or how injection of gas into the mine will affect ownership of the coalbed methane already present. Also, questions may arise regarding how coalbed methane in the mine will affect ownership of the storage space. Although the *Southern Ute* case involved the ownership of coalbed methane located in Colorado, the case provides little insight as to how a coalbed methane ownership dispute would be resolved under Colorado law. As discussed in *Section IV, Coalbed Methane Case Decisions*, the courts that have decided ownership issues have reached varying results as to whether the coalbed methane belongs to the coal or gas owner. Therefore, the resolution of any questions that arise concerning ownership of the coalbed methane already present in the mine is uncertain due to the lack of precedent in Colorado or consensus from a majority of jurisdictions.

Other considerations involved in storage of coalbed methane in abandoned mines in Colorado include which regulatory bodies will claim to have jurisdiction over the operations. At least two state agencies currently exercise jurisdiction over the existing storage facilities in Colorado.

However, neither of these two administrative bodies appear to be exercising the full extent of authority to which they are entitled under the relevant statutes, regulations and/or case law. The Public Utilities Commission of Colorado currently inspects two of the, at least, nine storage facilities in Colorado to ensure compliance with the United State's Department of Transportation Office of Pipeline Safety's Pipeline Safety Regulations. The Colorado Oil and Gas Conservation Commission is vested with the authority to regulate oil and gas operations in the state. However, other than permitting and overseeing the initial drilling of storage wells, the Oil and Gas Conservation Commission appears to be exercising little authority over storage facilities.

Another state agency that could exercise some control over a storage facility is the Water Quality Control Division of the Department of Public Health and Environment. If it is necessary to de-water the mine for storage, a discharge permit must be obtained. Furthermore, if the Water Quality Control Commission determines that the presence of methane in state ground water poses a threat to public health, safety or welfare, it could promulgate standards regulating the introduction of methane gas into ground water. However, to date, the Water Quality Control Division and the Water Quality Control Commission have declined to exercise any regulatory authority over storage.

Finally, counties and local governments can and do exercise regulatory authority over gas production in Colorado. Based on the holding in *Bowen/Edwards Assoc.*, it is likely that as long as a local government did not attempt to entirely prohibit a storage operation, it could exercise substantial regulatory authority over a storage facility. Thus, all of the previously mentioned regulatory bodies should be involved in planning an operation for storage of coalbed methane in an abandoned coal mine in Colorado.

ENDNOTES

1. *Southern Ute Indian Tribe v. Amoco Prod. Co.*, 874 F. Supp. 1142 (D. Colo. 1995) *rev'd* 119 F.3d 816 (10th Cir. 1997) ; *see also* J. Thomas Lane, *Fire in the Hole to Longwall Shears: Old Law Applied to New Technology and Other Longwall Mining Issues*, 96 W. VA. L. REV. 577, 621 (1994).

2. *See infra* notes 16-17 and accompanying text.

3. Richard A. Schraufnagel et al., *Coalbed Methane Development Faces Technology Gaps*, OIL & GAS J., Feb. 5, 1990, at 48.

4. *Id.*

5. Matt Benson, VOGA's *Work Reaps Success Within Political Arena*, AM. OIL & GAS REP., Aug. 994, at 127.

6. Stephen D. Ban, GAS RESEARCH INST., EXECUTIVE RESEARCH LETTER (Feb. 1993).

7. *Id.*; Benson, *supra* note 5.

8. Scott H. Stevens, *et al.*, *Technology Spurs Growth of U.S. Coalbed Methane*, OIL & GAS J. Jan. 1, 1996, at 57.

9. GAS RESEARCH INSTITUTE, QUARTERLY REVIEW OF METHANE FROM COAL SEAMS TECHNOLOGY No. 1 at 2 (David G. Hill ed., Aug. 1993) [hereinafter QUARTERLY REVIEW NO. 11]; *see also* Benson, *supra* note 5.

10. Stevens, *supra* note 8 at 56.

11. *Id.* at 57.

12. Telephone interview with Richard A. Schraufnagel, Gas Research Institute (Sept., 1997).

13. Based on information provided by Marnan Peacock, Colorado Oil and Gas Conservation Commission.

14. James P. Holland, *Underground Storage of Natural Gas: A Legal Overview*, 3 EASTERN MIN. L. INST. 19-1 at 19-4 (1982).

15. *Id.*

16. *See* Section V, *Ownership Claims to Storage Container Space*, for the discussion of this issue.

17. *See Southern Ute Indian Tribe v. Amoco Production Co.*, 874 F. Supp. 1142 (D. Colo. 1995) S.E.2d 80, 84 (Va. 1943) (holding that intent is to be gathered from the language used throughout the instrument); *Ward v. Baylor*, 153 S.E. 894, 896 (Va. 1930) (finding that in interpreting an instrument, a court will generally attempt to determine the purpose and intent of the grantor); *James River & Kanawha Power Co. v. Old Dominion Iron & Steel Corp.*, 122 S.E. 344, 349 (Va. 1924) (finding intent of the deed is to be gathered from the deed as a whole); *see also* 30 U.S.C.

§§ 181-287 (1994) (originally enacted as the Mineral Leasing Act of 1920, ch. 85, 41 Stat. 437); 30 U.S.C. §§ 541-541(i) (1994) (originally enacted as the Uraniferous Lignite Act of 1955, ch. 795, 69 Stat. 679); 43 U.S.C. § 299 (1994) (originally enacted as the Stock-Raising Homestead Act of 1916, ch. 9, 39 Stat. 862); 30 U.S.C. § 81 (1994) (originally enacted as Act of Mar. 3, 1909, ch. 270, 35 Stat. 844); 30 U.S.C. §§ 121-123 (1994) (originally enacted as Act of July 17, 1914, ch. 142, 38 Stat. 509); 30 U.S.C. §§ 83-85 (1994) (originally enacted as the Coal Lands Act of 1910, ch. 318, 36 Stat. 583); Act of June 15, 1880, ch. 223, 21 Stat. 199.

18. *Id.* A court cannot consider intent of the parties unless it determines that an ambiguity in the language exists. *See* J. Maddox's dissenting opinion in *Cantley v. Hubbard*, 623 So.2d 1079, 1082 (Ala. 1993).

19. "Coal" is defined under the Bureau of Indian Affairs, Department of the Interior, the agency charged with governing certain mineral regulations, as "*combustible carbonaceous rock, classified as anthracite, bituminous, subbituminous, or lignite* by A.S.T.M. designation O-388-666." Amoco Production Company's Brief in Support of its Motion for Summary Judgment on the Class Action Claim and the Class Action Defenses at 13, *Southern Ute Indian Tribe v. Amoco Prod. Co.*, No. 91-B02273 (D. Colo. filed Dec. 31, 1991) [hereinafter *Amoco's Brief in Support*]. The Dictionary of Mining, Mineral and Related Terms defines "coal" as:

> *A solid, brittle, more or less distinctly stratified, combustible carbonaceous rock*, formed by partial to complete decomposition of vegetation . . . not fusible without decomposition and very insoluble. The boundary line between peat and coal is hazy . . . as is the boundary line between coal and graphite and the boundary line between carbonaceous rock and coal . . . .

Id. At 108 (citing the DICTIONARY OF MINING, MINERAL AND RELATED TERMS 222 (1969)) (emphasis added). Webster's Dictionary defines the term "coal" as follows:

> *[A] black or brownish black solid combustible mineral* substance formed by the partial decomposition of vegetable matter without free access of air and under the influence of moisture and in many cases increased pressure and temperature, the substance being widely used as a natural fuel and containing carbon, hydrogen, oxygen, nitrogen, and sulfur as well as inorganic constituents that are left behind as ash after burning . . . .

Id. At 108-09 (citing WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 432 (1976)) (emphasis added).

20. "Gas" has been defined as "[t]he aeriform fluid, having neither independent shape nor volume, but tending to expand indefinitely." *Amoco's Brief in Support, supra* note 19, at 111 (citing A GLOSSARY OF THE MINING AND MINERAL INDUSTRY 295 (1920)). The agency charged with governing certain mineral regulations, the Minerals Management Service, Department of the Interior, defines gas as: "[A]ny fluid, either combustible or noncombustible, which is extracted from a reservoir and which has neither independent shape nor volume, but tends to expand indefinitely; a substance that exists in a gaseous or rarified state under standard temperature and pressure conditions." *Id.* (Citing 43 C.F.R. § 3000.0-5 (1992); *accord* 30 C.F.R. §§ 206.151, 216.6(i) (1992)).
Another definition of gas is "a fluid (as air) that has neither independent shape nor volume but tends to expand indefinitely . . . ." *Amoco's Brief in Support, supra* note 19, at 112 (citing WEBSTER'S NEW THIRD INTERNATIONAL DICTIONARY 937 (1976)).

21. Paul N. Bowles, *Coalbed Gas: Present Status of Ownership Issue and Other Legal*

Considerations, 1 E. MIN. L. INST. 7 (1980).

22. *See Rayburn v. USX Corp.,* No. 85-G-2661-W, 1987 U.S. Dist. LEXIS 6920 (N.D. Ala. 1987) (memorandum opinion and order), *aff'd without opinion*, 844 F.2d 796 (11th Cir. 1988); *Cantley v. Hubbard*, 623 So. 2d 1079 (Ala. 1993); *Vines v. McKenzie Methane Corp.*, 619 So. 2d 1305 (Ala. 1993); *Pinnacle Petroleum Co. v. Jim Walter Resources, Inc*., No. CV-87-3012 (Ala. Cir. Ct. July 28, 1989) (order partially granting defendant's motion for summary judgment); *Carbon County v. Baird*, No. DV 90-120, 1992 WL 464786, at *9 (Mont. Dist. Ct. Dec. 15, 1992), *reversed sub nom. Carbon County v. Union Reserve Coal Co.*, 898 P.2d 680 (Mont. 1995); *United States Steel Corp. v. Hoge*, 468 A.2d 1380 (Pa. 1983); *Rights to Coalbed Methane Under an Oil & Gas Lease for Lands in the Jicarilla Apache Reservation*, (M-36970), 98 I.D. 59 (1990); *Ownership of and Right to Extract Coalbed Gas in Federal Coal Deposits*, (M-35935), 88 I.D. 538 (1981).

23. *Amoco's Brief in Support, supra* note 19 at 108-09; *see also Skelly Oil Co. v. Savage*, 447 P.2d 395, 402 (Kan. 1968) (finding that liquids produced from a well are associated with the gas and such liquids are produced along with the gas; the gas cannot be produced without carrying with it the associated liquids); *Blocker v. Christie*, 340 S.W.2d 320, 321 (Tex. Civ. App. 1960) (finding that the evidence showed that the liquids involved look like oil, taste like oil, smell like oil and are stored and sold like oil; when the gas leaves the well head it is gaseous, and is also gaseous as it existed in the well).

24. Bowles, *supra* note 21, at 7-12.

25. *Amoco's Brief in Support, supra* note 19 at 108-09.

26. See discussion regarding ownership of the storage container space in Section V.

27. Bowles, *supra* note 21, at 7-12. The "surface" owner claim to coalbed methane would not be applicable in cases where only the surface was granted to the owner. It would, however, be applicable in situations where the coal, oil, and gas had been conveyed, but the other ("residual") minerals were owned by the "surface owner."

28. *Amoco's Brief in Support*, *supra* note 19 at 57-62.

29. *United States Steel Corp. v. Hoge*, 468 A.2d 1380, 1382 (Pa. 1983).

30. *Id.*

31. *Id.* at 1384.

32. *Id.* at 1385.

33. *Rayburn v. USX Corp.*, No. 85-G-2661-W, 1987 U.S. Dist. LEXIS 6920 at *5 (N.D. Ala. 1987).

34. *Id.* at *2 (emphasis added).

35. *Id.* at *8-*9.

36. *Rights to Coalbed Methane Under an Oil & Gas Lease for Lands in the Jicarilla Apache Reservation*, No. M-36970, 98 I.D. 59, 61-62 (1990).

37. *Id.* at 62-63.

38. *Id*. at 63.

39. *Id.* at 63-64.

40. *Carbon County v. Baird*, No. DV 90-120, 1992 WL 464786, slip op. at 4 (Findings of Fact).

41. *Id.*

42. *Id.* at 5.

43. *Id.* at 7.

44. *Id.* at 8.

45. *Id.* at 10.

46. *Id.*

47. 468 A.2d 1380 (Pa. 1983).

48. Civ. No. 85-G-2661-W (N.D. Ala. July 28, 1987), *aff'd without opinion*, 844 F.2d 796 (11th Cir. 1988).

49. No. CV-87-3012 (Ala. Cir. Ct. July 29, 1989).

50. Memorandum at 23, *Carbon County* (No. DV 90-120).

51. *Carbon County*, No. DV-90-120, slip op. at 4 (Final Judgment and Decree).

52. *Id.* at 5-6.

53. *Id.* at 7.

54. *Carbon County v. Union Reserve Coal Co.*, 898 P.2d 680 (Mont. 1995).

55. *Id.* at 686.

56. *Id.*

57. *Id.* at *687.*

58. *Id.*

59. *Id.*

60. *Id.* at 688.

61. *Id.* at 689.

62. *Id.* at 688.

63. *Vines v. McKenzie Methane Corp.*, 619 So. 2d 1305, 1306 (Ala. 1993).

64. *Id.*

65. *Id.* at 1307.

66. 468 A.2d 1380 (Pa. 1983).

67. Civ. No. 85-G-2661-W (N.D. Ala. July 28, 1987), *aff'd without opinion*, 844 F.2d 796 (11th Cir., 1988).

68. No. DV 90-120, 1992 WL 464786 (Mont. Dist. Ct. Dec. 14, 1992), *rev'd sub nom. Carbon County v. Union Reserve Coal Co.*, 898 P.2d 680 (Mont. 1995).

69. *Vines*, 619 So. 2d at 1308.

70. *Id.* at 1308-09. *See generally Carter Oil Co. v. Blair*, 57 So. 2d 64 (Ala. 1952).

71. *Vines*, 619 So. 2d at 1309. Two of the justices rendered a dissenting opinion, contending that the Deeds were ambiguous. Thus, the dissent concluded that the trial court erred in holding, as a matter of law, that the parties to the Deeds could have contemplated the conveyance of coalbed methane gas, which was of no commercial value at the time of the Deeds. The date of the conveyance and the minerals commonly recognized at the time of the conveyance were determinative of the issue. This interpretation was based on several cases. *Id.*

72. *Cantley v. Hubbard*, 623 So. 2d 1079, 1080 (Ala. 1993).

73. *Id.* at 1079.

74. 619 So. 2d 1305 (Ala. 1993).

75. *Cantley*, 623 So. 2d at 1080. Justice Maddox entered a dissenting opinion stating that the reservation in the 1929 warranty deed contained a "latent ambiguity" and thus concluded that summary judgment was inappropriate. *Id.* at 1082.

76. For additional discussion of the *West* case, see John Land McDavid, Summary, *Construction of Express of "all coal" in Deed*, 9 E. MIN. LAW FOUND. CASE UPDATE 16 (1994).

77. *West*, 631 So. 2d at 216.

78. *Id.* at 216-17.

79. *Id.* at 222-23.

80. *Id.* at 224.

81. *Id.* at 223 (citing *Williams v. Gibson*, 4 So. 350, 353-54 (Ala. 1888)). The *Williams* court based its findings on the "rule of capture." *See* Robert E. Hardewicke, *The Rule of Capture and Its Implications as Applied to Oil and Gas*, 13 TEXAS L. REV. 391, 393 (1935)).

82. *West*, 631 So. 2d at 224.

83. *Id.* at 229.

84. *Id.* On December 10, 1993, the Alabama Supreme Court overruled an application for rehearing. The court, however, modified its October 8, 1993 opinion by adding the final sentence of the above-referenced quote.

85. *Id.*

86. *Id.* Justice Maddox, however, wrote a dissenting opinion. He interpreted the deeds at issue as ambiguous and, therefore, determined that the rules of deed construction set forth in *Nettles v. Lichtman*, 152 So. 2d 450, 452 (Ala. 1934) and *Williams v. Johns-Carroll Lumber Co.*, 192 So. 278, 280 (Ala. 1939) were applicable. Justice Maddox did not believe that the parties to the Deeds contemplated coalbed methane development at the time the deeds were executed. He reasoned: "Why would a party retain the right to something which is only a waste product with well-known dangerous propensities? . . . It strains credulity to think that the grantor intended to reserve the right to extract a valueless waste product with the attendant potential responsibility for damages resulting from its dangerous nature." *West*, 631 So. 2d at 232 (Maddox, J., dissenting) (quoting *Vines v. McKenzie Methane Corp.*, 619 So. 2d 1305, 1308 (Ala. 1993)). Although the definition of "gas," included in the oil and gas statutes in effect at the time, was broad enough to include coalbed methane, Justice Maddox also noted that such a conclusion was probably not the intention of the legislature. *Id.* at 230-31 (referencing Ala. Code § 9-17-1). Justice Maddox was unable to distinguish the *Vines* and *Hoge* cases from the case at bar and would have, therefore, applied the holdings in these cases (*Vines* and *Hoge*) to the present case. *Id.* at 232. *See also In re: Hillsborough Holdings Corp.*, 207 B.R. 299 (Bankr. M.D. Fla. 1997) (bankruptcy court applying Alabama law under *West* held that coalbed methane extracted from horizontal and vertical wells where the gas was "captured" directly from the coal seams was owned by coal owners, and coalbed methane captured by gob wells was owned by oil and gas owners since the gas did not remain within the coal until the time of capture.)

87. *Southern Ute Indian Tribe v. Amoco Production Co.,* 874 F. Supp. 1142 (D. Colo. 1995) *rev'd* 119 F.3d 816 (10th Cir. 1997).

88. *Southern Ute Indian Tribe v. Amoco Production Co.*, 119 F.3d 816 (10th Cir. 1997).

89. *Id.* at 821 n. 4.

90. *Id.* at 826.

91. 88 Interior Dec. 538 (1981).

92. *Southern Ute*, 119 F. 3d at 833.

93. *Id.* at 836.

94. For a detailed analysis of the case at the trial court level, *see* Elizabeth A. McClanahan, *Coalbed Methane: Myths, Facts, and Legends of its History and the Legislative and Regulatory Climate into the 21st Century*, 48 OKLA. L. REV. 471, 498-506 (1995).

95. 631 So.2d 12 (Ala. 1993).

96. 619 So.2d 1305 (Ala. 1993).

97. 468 A.2d 1380 (Pa. 1983).

98. No. DV 90-120, 1992 WL 464786 (Mont. Dist. Ct. Dec. 14, 1992), *rev'd Sub Nom. Carbon County v. Union Reserve Coal Co.*, 898 P.2d 680 (Mont. 1995).

99. *Southern Ute*, 119 F. 3d at 828, n. 17.

100. 186 S.E.2d 20 (Va. 1986).

101. *Id.* at 22.

102. M. Jill Morgan & Elizabeth A. McClanahan, *Competing Ownership Claims to Coalbed Methane in the Appalachian Basin*, LANDMAN, July-Aug. 1990, at 23.

103. *Id.*

104. *Id.*

105. *Id.*

106. *See International Salt Co. v. Geostow*, 878 F.2d 570, 575 (2d Cir. 1989).

107. Morgan & McClanahan, *supra* note 102.

108. *Id.*

109. *Pinnacle Petroleum Co.*, No. CV-87-3012 (Ala. Cir. Ct. July 28, 1989) (order partially granting defendant's motion for summary judgment).

110. *Id.* Litigation in the case continued in certain bankruptcy proceedings. The court granted Pinnacle's motion to sever claims against Jim Walter to allow Pinnacle to proceed against the solvent defendants. *Id.*

111. *Finite*, (No. 93-L-47).

112. *Id.* (Complaint at 2-5).

113. *Id.*; *see* Answer to Defendants/Counter plaintiff's Affirmative Defenses and Counterclaims at 1-2.

114. *Id.* at 10.

115. *Id.* at 9-10.

116. *Id.* at 10.

117. *Id.* at 11-12.

118. W.L. Summers, LAW OF OIL & GAS, § 758.1 at 84 (Supp. 1997).

119. *Id.*

120. Colo. Rev. Stat. § 34-64-101.

121. Colo. Rev. Stat. § 34-6-103.

122. Colo. Rev. Stat. § 34-64-102 (3). 15 U.S.C.A. § 717a defines "natural-gas company" as any individual or corporation "engaged in the transportation of natural gas in interstate commerce, or the sale in interstate commerce of such gas for resale."

123. Colo. Rev. Stat. § 34-64-102 (2).

124. Colo. Rev. Stat. § 34-64-104.

125. Colo. Rev. Stat. § 34-64-105.

126. Colo. Rev. Stat. § 34-64-104.

127. Colo. Rev. Stat. § 34-64-106.

128. *Id*.

129. Colo. Rev. Stat. § 38-1-102(1).

130. Colo. Rev. Stat. § 38-1-102(1) provides: "In all cases where the right to take private property . . . is conferred . . . **and the compensation paid . . . cannot be agreed upon by the parties interested** . . . it is lawful for the party authorized to take . . . the property so required to . . . fil[e] with the clerk a petition . . . [to condemn]." Emphasis added.

131. *Attebery v. Blair*, 91 N.E. 475, 479 (Ill. 1910) (finding mineral owner could "use the space where the coal was found in any way which they saw fit"); *Lillibridge v. Lackawana Coal Co.*, 22 A. 1035, 1037 (Pa. 1891) (explaining that the surface owner "cannot possibly use any part of the space left by the removal of the coal, and hence they are not obstructed in the slightest degree. The right to use that space is exclusively in the" mineral owner).

132. *See Webber v. Vogel*, 42 A. 4, 5 (Pa. 1899) (stating that although *Lillibridge* is not overruled, the coal owner has a right to the mine space only while work was progressing. The coal interest did not include "an undisputed and perpetual right of way under another's land); *Texas American Energy Corp. v. Citizens Fidelity Bank and Trust Co.*, 736 S.W.2d 25 (Ky. 1987). *See also Pomposini v. T.W. Phillips Gas and Oil Co.*, 580 A.2d 776 (Pa. 1990) (absent an express agreement, the right to extract gas did not include the right to use cavernous spaces owned by the lessor for the storage of gas).

133. *See, International Salt Co. v. Geostow*, 878 F.2d 570 (2nd Cir. 1989) (granting right to use of excavated cavity so long as mine is not exhausted or abandoned to owner of mineral interest. Use of cavity is contingent upon the fact that the mine is not exhausted or abandoned. Mineral owner owns only the salt, not the excavation cavity or containing chamber. However, the court indicated a deed granting "'mines *and* minerals'" could entitle the mineral owner to the container space after minerals are depleted).

134. Summers, *supra* note 118, n. 67.5. *See*, *Ellis v. Arkansas Louisiana Gas Co.*, 450 F. Supp. 412 (E.D. Okla. 1978), (holding that a grant of minerals gives grantee the right to explore and produce the minerals — grant does not convey "the stratum of rock containing the pore spaces within which the oil and gas may be found") (the American rule is that the cavern which remains after the hard minerals are mined is owned by the surface owner) (portion of case involving prescriptive easement affirmed by 609 F.2d 436 (10th Cir. 1979)); *Emeny v. United States*, 412 F.2d 1319 (Cl.

Ct. 1969) (oil and gas leases for purposes of mining and operating for oil and gas do not grant rights to store foreign minerals in closed structure or underground dome under leased property); *Miles v. Home Gas Co.* 35 A.D.2d. 1042 (N.Y. 1970) (grant of "all the oil, gas and minerals . . . together with right at all times to enter on said premises and to bore wells, make excavations, lay pipes and remove all oil, gas and minerals found thereon" conveyed rights pertaining only to production and transmission and could not be construed to cover use of depleted domes or strata for storage of gas from foreign fields); *U.S. v. 43.42 Acres of Land*, 520 F. Supp. 1042 (W.D. La. 1981)(in dispute over ownership of a salt cavern which was to be used for oil storage, the court held "that the facts presented by this case are more closely analogous to the general rule in common law states which provides that, after the removal of minerals, the opening left by the mining operations belongs to the land owner by operation of law"); *Mallon Oil Co.*, 104 IBLA 145, 150 (Sept. 2, 1988)("The general rule in the United States appears to be that, once the minerals have been removed from the soil, the space occupied by the minerals reverts to the surface owner by operation of law"); *Dep't of Transp. v. Goike*, 560 N.W.2d 365 (Mich. App. 1996) (storage space, once it has been evacuated of the minerals and gas, belongs to the surface owner).

135. Ali M. Modjehi, *Ownership Rights in Subsurface Natural Gas Storage Areas*, 16 Tulsa L. J. 470 (1981).

136. One Colorado case which deals with subsurface ownership and use is *Smith v. Wright*, 424 P.2d. 384 (Colo. 1967). However, the *Smith* decision appears to be very fact specific and, other than the court's method of resolving the dispute (careful reading of the granting language), is probably not a strong indicator of how a Colorado court would treat a subsurface container ownership dispute. In *Smith*, the subject deed granted a perpetual easement to use a tunnel for coal removal. The grantor sought to limit use of the easement to mining under the grantor's property. The court found that the language in the deed clearly expressed an intent for the easement to be used for mining under adjacent tracts.

137. Colo. Rev. Stat. § 34-60-103(5).

138. Colo. Rev. Stat. § 34-60-106(2)(a).

139. Colo. Rev. Stat. § 34-60-106(2)(b).

140. Colo. Rev. Stat. § 34-60-106(2)(c).

141. Colo. Rev. Stat. § 34-60-106(2)(d).

142. Colo. Rev. Stat. § 34-60-106(1)(f).

143. 2 CCR 404-1-100.

144. *Id.*

145. 2 CCR 404-1-303.

146. *Id*. The scale drawing must include the information specified in 2 CCR 404-1-303(c).

147. 2 CCR 404-1-304.

148. 2 CCR 404-1-305(b).

149. 2 CCR 404-1-305(c).

150. 2 CCR 404-1-306.

151. 2 CCR 404-1-317.

152. *Id.*

153. Colo. Rev. Stat. § 34-61-101 *et seq.*

154. Colo. Rev. Stat. § 34-61-102.

155. *Id.*

156. *Id.*

157. Colo. Rev. Stat. § 34-61-103; Colo. Rev. Stat. § 34-61-105.

158. Colo. Rev. Stat. § 34-61-104.

159. Colo. Rev. Stat. § 40-3-102.

160. Colo. Rev. Stat. §40-1-103.

161. 4 CCR 723-11.

162. 4 CCR 723-11-1.12.

163. 4 CCR 723-11-1.15.3.

164. 4 CCR 723-11-1.16.

165. Colo. Rev. Stat. § 40-2-111 .

166. 4 CCR 723-11-8.

167. 4 CCR 723-11-3.2.

168. 4 CCR 723-11-3.1.

169. 4 CCR 723-11-2; 4 CCR 723-11-7.

170. 4 CCR 723-11-10.

171. 4 CCR 723-11-12.

172. 4 CCR 723-11-23. *See also* Colo. Rev. Stat. Ann. § 40-7-117 (providing civil penal to compel compliance with gas pipeline safety rules).

173. Interview with Steve Pott, Colorado Public Utilities Commission (Dec., 1997).

174. *Id.* The PUC currently inspects the Leyden Mine storage field in Jefferson County and Roundup

storage field in Morgan County because the Public Service Company of Colorado has rolled both facilities into its rates.

175. 49 CFR § 192; Colo. Rev. Stat. Ann. § 40-2-115(1.5) authorizes the PUC to adopt rules necessary to the administration and enforcement of the "Natural Gas Pipeline Safety Act of 1968" (49 U.S.C. 1671 to 1687).

176. 49 CFR § 192.

177. *See Mountain View Elec. Ass'n v. Public Ut. Com'n*, 686 P.2d 1336 (Colo. 1984) ("The PUC's conclusion that a safety hazard exists and the determination of an appropriate remedy are valid exercises of its constitutional and statutory police power.") . *See also* Colo. Rev. Stat. 40-3-101(2) ("Every public utility shall furnish, provide, and maintain such service, instrumentalities, equipment, and facilities as shall promote the safety, health, comfort, and convenience of its patrons, employees, and the public. . . .") and Colo. Rev. Stat. 40-4-101(1) ("Whenever the commission . . . finds that the rules, regulations, practices, equipment facilities or service of any public utility or the methods . . . of storage or supply employed by it are . . . unsafe . . . the commission shall determine the . . . safe . . . practices . . . to be observed . . . and shall fix the same by its order rule or regulation.").

178. Colo. Rev. Stat. 34-60-106(2)(d). *See also* Col. Rev. Stat. § 34-60-106 (11) "The Commission shall promulgate rules and regulation to protect the health, safety, and welfare of the general public and the conduct of oil and gas operations."

179. Colo. Rev. Stat. § 34-60-103(6.5).

180. Colo. Rev. Stat. § 34-60-106(e).

181. 2 CCR 404-1-100.

182. 2 CCR 404-1-404.

183. 2 CCR 404-1-401(b) (4).

184. 2 CCR 404-1-403.

185. 2 CCR 404-1-402.

186. 2 CCR 404-1-324A(d). The Rule also requires that the applicant demonstrate that the storage activity will not cause a violation of any drinking water regulation in effect as of July 12, 1982 and found at 40 CFR part 142. However, methane is not defined as a pollutant by 40 CFR part 142. Rule 324A(d) defines "underground source of drinking water [as] an aquifer or its portion:

(1) a. Which supplies any public water system; or
b. Which contains sufficient quantity of ground water to supply a public water system; and
i. Currently supplies drinking water for human consumption; or
ii. Contains ten thousand (10,000) milligrams per liter total dissolved solids; and (2) which is not an exempt aquifer."

187. 2 CCR 404-1-317.

188. 2 CCR 404-1-316A. A "Gas Storage Project Report (Form 14A)" would be used for filing this report. See OGCC Rules, Appendix part IV.

189. Interview with Ed Dimatteo, Colorado Oil and Gas Conservation Commission (Dec., 1997).

190. *Id.* The OGCC Rules contain various provisions addressing "Injection Wells." These sections have not been included in this report because Injection Wells are those wells defined by 40 CFR § 144.6(b) and do "not include gas storage wells." The OGCC generally uses the term to refer to wells used to dispose of waste-water.

191. Colo. Rev. Stat. § 25-8-101 *et seq.*

192. 5 CCR 1002-61.3(1).

193. 5 CCR 1002-41.5 (A)(1.): "Ground Water shall be free from pollutants not listed in the table referred to in § 41.5 (B), which alone or in combination with other substances are concentrations shown to be:
    a. Carcinogenic, Mutagenic, Teratogenic, or toxic to human beings, and/or
    b. a danger to the public health, safety, or welfare".

194. Interview with George Moravec, Leader, Ground Water Unit, Colorado Water Quality Control Division (Dec., 1997).

195. *Board of County Comm'rs, La Plata County, Colo. v. Bowen/Edwards Assoc., Inc.,* 830 P.2d 1045 (Colo. 1992).

196. Colo. Rev. Stat. § 29-20-101 *et seq.*

197. *Bowen/Edwards Assoc., Inc.,* 830 P.2d at 1050; *citing* La Plata County, Colo., Oil and Gas Regulations of La Plata County, Colo. 1988 § 6.103.

198. *Id.*

199. *Id.* at 1050, n.3; *citing* La Plata County, Colo., Oil and Gas Regulations of La Plata County, Colorado 1988 § 6.202.

200. *Id.*

201. *Id. citing* La Plata County, Colo., Oil and Gas Regulations of La Plata County, Colorado 1988 § 6.203.

202. Id., *citing* La Plata County, Colo., Oil and Gas Regulations of La Plata County, Colorado 1988 § 6.204.

203. *Id.*

204. *Id.*

205. *Id.* at 1057.

206. *Id.* at 1060.

207. *Id.*

208. *Voss v. Lundvall Brothers, Inc.*, 830 P.2d 1061 (Colo. 1992).

209. *Id.* at 1069.

210. *Id.* at 1068.

211. La Plata County, Colo., La Plata County Oil and Gas Regulations, La Plata Land Use System §§ 7.5-8.3 37 (1997).

212. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § A(1) (1986).

213. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(1)(a) (1986).

214. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(1)(b)-(c) (1986).

215. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(1)(e) (1986).

216. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(1)(f) (1986).

217. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(1)(g) (1986).

218. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(1)(h) (1986).

219. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(2)(a) (1986).

220. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(2)(b) (1986).

221. *Id.*

222. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production f Natural Gas § F(2)(c) (1986).

223. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(2)(d) (1986).

224. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(3) (1986).

225. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(4)(a) (1986).

226. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(4)(b) (1986).

227. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(5)(a) and (d) (1986).

228. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(5)(b) (1986).

229. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(5)(c) (1986).

230. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(6)(a)-(d) (1986).

231. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(7)(a) (1986).

232. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(7)(b)-(c) (1986).

233. Jefferson County, Colo., Jefferson County Zoning Resolution, Section 4: Drilling and Production of Natural Gas § F(8)(a)-(b) (1986).

234. Mesa County, Colo., Mesa County Land Development Code § 10.9.2 (1995).

235. Mesa County, Colo., Mesa County Land Development Code § 10.9.4 (1995).

236. Mesa County, Colo., Mesa County Land Development Code § 10.9.5 (1995).

237. *See* American Gas Association, *Survey of Underground Storage of Natural Gas in the United States and Canada (1997).*

238. *Id.*

239. Robert M. Meddles, *Underground Gas Storage in the Leyden Lignite Mine*, Rocky Mountain Assoc. of Geologist 1978 Symposium, p. 51.

240. *Id*.

241. *Id.*

242. *Survey of Underground Storage of Natural Gas in the United States and Canada (1997)*, *supra* note 237.

243. *White Paper: Gas Storage at the Abandoned Leyden Coal Mine near Denver, Colorado*, U.S. EPA Coal Mine Methane Outreach Program, in progress.

244. Loesby also filed suit in Jefferson County District Court in September of 1996.

245. OGCC Order no. 1-62 entered November 4, 1996.

246. OGCC Order no. 1-62 entered November 4, 1996. The order stated in part that: the commission finds as follows:

> 3. On September 16, 1996, Public Service Company of Colorado filed with the Commission a response to the application, indicating among other things that the commission does not have jurisdiction over this matter. On October 8, 1996, Public Service Company of Colorado filed with this commission a supplement to the original response indicating that the Public Utilities Commission has jurisdiction over this matter and requesting that the complaint/application therefore be dismissed.
>
> 4. On October 8, 1996, Colorado Interstate Gas Company filed with the Commission a notice of intervention in this matter, requesting that the issue of jurisdiction over gas storage be limited to the Leyden's gas storage field.
>
> . . .
>
> 6. After discussion by the commission, approval was unanimous that the commission has jurisdiction to investigate the complaint . . . .

NOW, THEREFORE, IT IS ORDERED, that the Colorado Oil and Gas Conservation Commission shall have jurisdiction to investigate the complaint alleged by Richard Loesby in accordance with procedures set forth in Rule 522 of Rules and Regulation of the Oil and Gas Conservation Commission.

247. *See* November 8, 1996, memo from George F. Moravec, Leader, Ground Water Unit, to David Holm, Director WQCD; see also memo from George F. Moravec, Leader, Ground Water Unit, to David Holm, Director, WQCD December 27, 1995.

248. Moravec's December 27, 1995 memorandum, *supra* note 247.

249. Moravec's November 8, 1996 memorandum, *supra* note 247.

250. Interview with George Moravec, Leader, Ground Water Unit, Colorado Water Quality Control Division (Dec., 1997).

251. Moravec's December 27, 1995 memorandum, *supra* note 247.

252. *See Survey of Underground Storage of Natural Gas in the United States and Canada (1997)*, *supra* note 237.

253. *Id*.

254. In addition, this report did not address the jurisdiction of any federal agencies or any federal regulations, other than those that have been adopted by a state agency, that would apply to underground storage. For example, the Federal Energy Regulatory Commission and the U.S. Department of Transportation could exercise jurisdiction over facilities that store gas moving in interstate commerce.